

POWERINE REFINERY

Santa Fe Springs, California



Quarterly Groundwater Monitoring and Sampling Report

**ENSR Consulting and Engineering
(Formerly ERT)**

October 1989

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**QUARTERLY GROUNDWATER MONITORING AND
SAMPLING REPORT FOR THE
POWERINE REFINERY**

September 1989

PREPARED FOR

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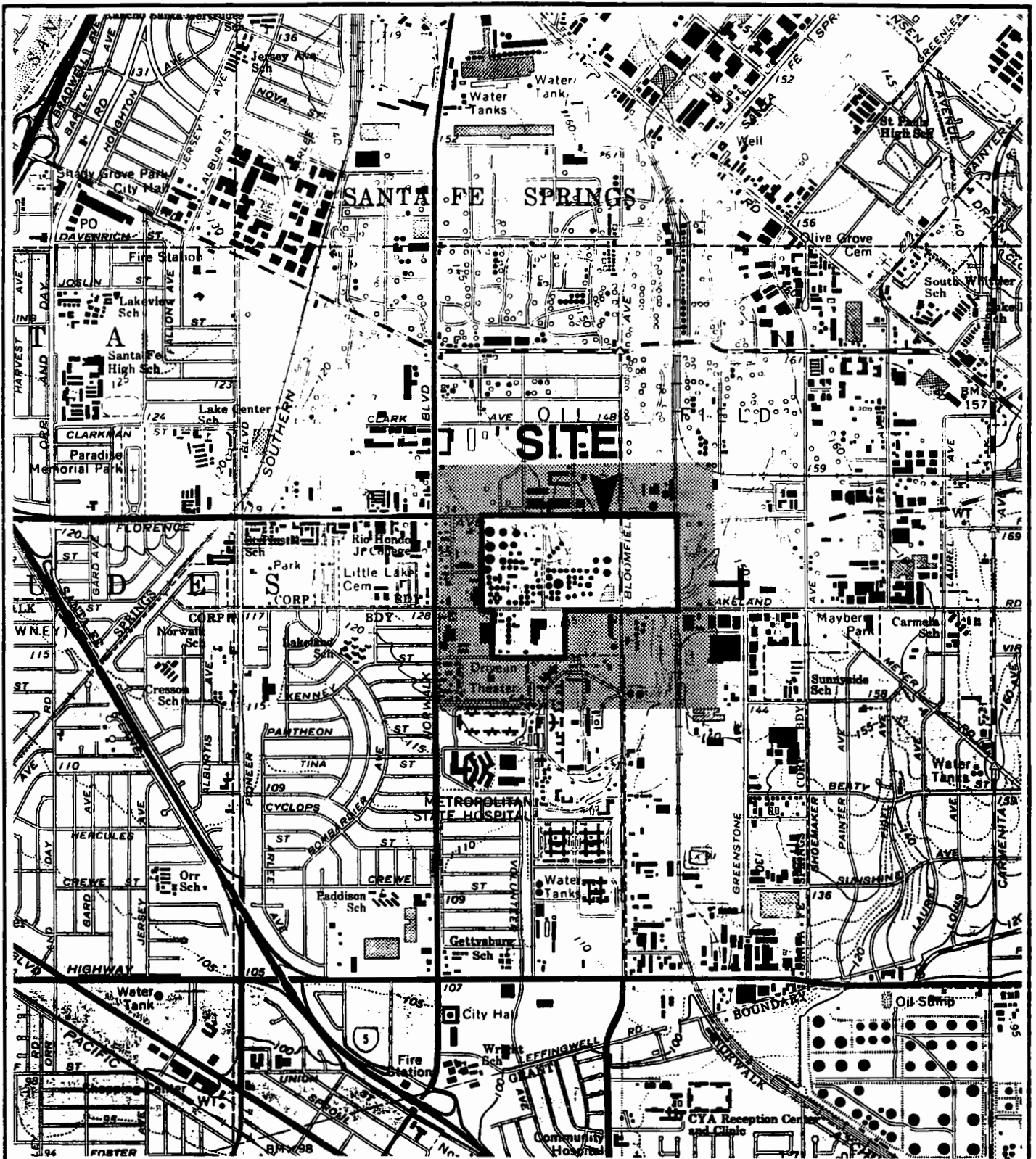
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1.0 INTRODUCTION

ENSR Consulting and Engineering personnel measured water levels in fourteen (14) monitoring wells on August 29 and 30, 1989 and collected water samples from eight (8) monitoring wells on August 29 and 30, 1989 at the Powerine Oil Company refinery located at 12354 Lakeland Road, Santa Fe Springs, California (Figures 1 and 2). Groundwater samples were analyzed to evaluate the concentrations of purgeable halocarbon and purgeable volatile organic compounds. This work was performed to comply with the requirements of the Regional Water Quality Control Board, Los Angeles Region (RWQCB) for quarterly monitoring, sampling, and analytical testing of perched groundwater beneath the refinery. This report summarizes the field procedures, laboratory analyses, and analytical results for the third quarter of 1989.



REFERENCE: USGS 7.5 MINUTE SERIES
WHITTIER QUADRANGLE 19

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SITE LOCATION MAP SANTA FE SPRINGS, CALIFORNIA

| | | |
|---------------------|--------------|-----------------------|
| DRAWN BY: <i>BM</i> | DATE: 7/6/89 | PROJECT NO.: 5500-005 |
| CHK'D BY: | REVISED: | DWG. NO.: FIGURE 1 |

FX-9 Wells



2.0 GROUNDWATER MONITORING AND SAMPLING

2.1 Water-Level Monitoring

Water-level monitoring was performed on August 29 and 30, 1989 using a Solinst water level meter in wells containing water only, and a stainless steel tape with water gauging paste and gasoline gauging paste in wells containing free product (MW-501, MW-502, MW-504). Monitoring equipment was decontaminated following each measurement. The decontamination procedure consisted of a tap water rinse, a thorough scrubbing using a non-phosphatic detergent in tap water, a second tap water rinse, and a final rinse using distilled water obtained from a State-certified analytical laboratory.

Groundwater level monitoring results are summarized in Table 1 and are illustrated on the groundwater contour map in Figure 3. Groundwater elevations ranged from 33.05 feet above MSL in MW-206 to 51.70 feet above MSL in MW-104. The water table gradient slopes generally southwestward across the site.

As in previous quarters, monitoring well MW-202 was observed to be dry. Monitoring well MW-101 was also observed to be dry this quarter. Monitoring wells MW-501, MW-502, and MW-504 contained .96 feet, 2.83 feet, and 2.06 feet of free product, respectively on the upper surface of the perched aquifer. Therefore, water samples were not extracted from these monitoring wells. The depth to groundwater was not measured in monitoring well MW-102 because the well was reportedly destroyed sometime prior to July, 1987.

FX-9 Wells

TABLE 1
SUMMARY OF WATER-LEVEL MONITORING DATA

| MW No. | Date | Elevation Top of Casing (feet,MSL) | Depth to Water (feet) | Water Level Elevations (feet,MSL) | Free Product Thickness (feet) |
|-----------|---------|---|--------------------------------|--|--|
| 101 | 8/29/89 | 134.98 | b | b | b |
| 102 | 8/29/89 | 134.81 | a | a | a |
| 103 | 8/29/89 | 136.95 | 96.20 | 40.75 | ND |
| 104 | 8/29/89 | 141.60 | 89.90 | 51.70 | ND |
| 201 | 8/29/89 | 132.91 | 93.60 | 39.31 | ND |
| 202 | 8/29/89 | 137.89 | b | b | b |
| 203 | 8/29/89 | 143.89 | 97.85 | 46.04 | ND |
| 204 | 8/29/89 | 140.14 | 98.00 | 42.14 | ND |
| 205 | 8/29/89 | 138.17 | 93.20 | 44.97 | ND |
| 206 | 8/30/89 | 129.93 | 96.88 | 33.05 | ND |
| 501 | 8/29/89 | 128.70 | 96.17 | 33.25 ^c | .96 (.81) ^d |
| 502 | 8/29/89 | 131.19 | 99.08 | 34.23 ^c | 2.83 (3.13) ^d |
| 503 | 8/29/89 | 131.43 | 96.30 | 35.13 | ND |
| 504 | 8/29/89 | 133.83 | 99.21 | 36.17 ^c | 2.06 (2.20) ^d |

KEY

- ND = Not Detected
 (a) = Destroyed Well
 (b) = Dry Well
 (c) = Corrected Groundwater Level Elevation; Computed by
 [(Elevation of Top of Casing - Depth to Water)] + [Free
 Product Thickness x 0.75]
 (d) = Thickness of free product, previous quarter
 MW = Monitoring Well

2.2 Groundwater Sampling

Eight (8) monitoring wells were sampled on August 29 and 30, 1989. All wells sampled were purged with an electric submersible pump or hand bailer prior to sampling. Sampling began with monitoring well MW-104, as it was the only well determined to not contain detectible levels of hydrocarbons during monitoring of the previous quarter. Following sampling of well MW-104, sampling was resumed starting with monitoring well MW-204, which contained water with the lowest reported concentrations of hydrocarbon compounds, and proceeded sequentially to wells with progressively higher reported concentrations. This sampling sequence was followed in order to minimize the potential for cross contamination between wells. The production well (P-6 on Figure 2) was not sampled because its associated holding tank remained inoperable during the time of monitoring and sampling.

Before groundwater samples were collected, each well was purged of approximately four (4) well volumes of water using either a 1/3-horsepower Grundfos submersible pump, large volume PVC hand bailer, or a low volume Teflon hand bailer. Prior to purging of the monitoring wells with the submersible pump, a fire permit was obtained from refinery safety personnel to operate the gasoline powered generator at the well head. Upon removal of four (4) well volumes, the water's pH, temperature, and specific conductance were measured and recorded. Purged water was discharged into 55-gallon metal drums and then sealed to be later disposed by refinery personnel.

After purging, water samples were extracted from the monitoring wells using a decontaminated Teflon bailer. Samples were placed into two (2) 40-milliliter VOA vials. The VOA vials were clear glass and pretreated with dilute HCl, which inhibits the biodegradation of volatile aromatic compounds. All samples were properly labeled, sealed, and immediately placed on ice in a pre-

cooled portable cooler. In addition, two (2) sample blanks consisting of distilled water obtained from a State-certified laboratory were collected (MW-001, MW-002). These sample blanks were extracted from the same Teflon bailer used to sample the monitoring wells. Monitoring wells MW-501, MW-502, and MW-504 contained free product and, therefore, were not sampled.

All equipment used to purge and sample the monitoring wells was decontaminated before and after each use. The decontamination procedure consisted of a tap water rinse, a thorough scrubbing in tap water and non-phosphatic detergent, a second tap water rinse, and a final rinse using laboratory grade distilled water.

A summary of the data recorded while sampling the monitoring wells is presented in Table 2. Specific conductance values ranged from 1310 $\mu\text{mhos/cm}$ in MW-103 to 4330 $\mu\text{mhos/cm}$ in MW-104 and, in general, demonstrated decreasing values across the site from the northeast to the southwest. The measurements of water pH ranged from 6.72 to 8.27.

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING DATA

| <u>MW No.</u> | <u>Time</u> | <u>Purge Method</u> | <u>Volume Purged (gals.)</u> | <u>Temp. (°C)</u> | <u>pH</u> | <u>Specific Conductance (μmhos/cm)</u> | <u>Water Turb.</u> |
|---------------|---------------------|---------------------|------------------------------|-------------------|-----------|--|-------------------------------------|
| 101 | (a) | (a) | (a) | (a) | (a) | (a) | (a) |
| 103 | 08/29/89 (15:51) | SHB | 0.8 | 26 | 7.79 | 1310 | silty, gray/ green, cloudy |
| 104 | 08/29/89 (13:50) | SP | 16 | 26 | 6.81 | 4330 | sl. cloudy |
| 201 | 08/30/89 (13:28) | LHB | 15 | 25 | 6.72 | 2050 | lt.tan sl. cloudy |
| 202 | (a) | (a) | (a) | (a) | (a) | (a) | (a) |
| 203 | 08/30/89 (11:19) | SP | 20 | 23 | 7.22 | 3620 | lt.gray, sl. cloudy |
| 204 | 08/29/89 (15:08) | LHB | 20 | 26 | 6.30 | 2010 | lt.gray, sl. cloudy |
| 205 | 08/30/89 (12:15) | SP | 18 | 25 | 7.93 | 1950 | silty, sl. cloudy |
| 206 | 08/30/89 (16:20) | LHB | 6 | 24 | 7.89 | 2300 | gray/ green sl. cloudy |
| 501 | (b) | (b) | (b) | (b) | (b) | (b) | (b) |
| 502 | (b) | (b) | (b) | (b) | (b) | (b) | (b) |

TABLE 2 (continued)

SUMMARY OF GROUNDWATER SAMPLING DATA

| <u>MW No.</u> | <u>Time</u> | <u>Purge Method</u> | <u>Volume Purged (gals.)</u> | <u>Temp. (°C)</u> | <u>pH</u> | <u>Electrical Conductivity (µmhos/cm)</u> | <u>Water Turb.</u> |
|-------------------|---------------------|-------------------------|--------------------------------------|-----------------------|-----------|---|-------------------------|
| 503 | 08/30/89 (14:49) | SP | 50 | 23 | 7.13 | 1960 | clear/ sl. cloudy |
| 504 | (b) | (b) | (b) | (b) | (b) | (b) | (b) |

KEY

MW = Monitoring well
 (a) = Insufficient water in well
 (b) = Not sampled due to presence of free product in well
 LHB = Large volume hand bailer
 SHB = Low volume hand bailer
 SP = Submersible pump
 sl. = Slightly
 Turb= Turbidity

All samples were submitted to Enseco/Chemical Research Laboratories (CRL), Inc., a California-certified analytical laboratory, for analysis using EPA Test Methods 601 and 624. Standard chain-of-custody procedures and documents were utilized (Appendix A). Test methods were performed following EPA monitored quality assurance/quality control procedures assuring results of laboratory analyses.

3.1 EPA Test Method 601

EPA Method 601 is a purge and trap gas chromatographic method applicable to the determination of purgeable halocarbons from water samples as prescribed by 40 CFR 136.1. An inert gas is bubbled through a 5-ml water sample contained in a specifically-designed purging chamber and maintained at ambient temperature from the aqueous phase to the water vapor phase. The vapor is swept through a sorbent trap where the halocarbons are trapped. After purging is completed, the trap is heated and backflushed with the inert gas to desorb the halocarbons which are then detected with a halide specific detector. Two field reagent blanks were prepared from reagent water and carried through the sampling and handling protocol to check for possible contamination. Standard operating procedures require that compound identification should be supported by at least one additional qualitative technique, such as EPA Method 624.

3.2 EPA Test Method 624

EPA Method 624 is a purge and trap gas chromatographic/mass spectrometer (GC/MS) method applicable to the determination of purgeable organics from water samples, and is also prescribed by 40 CFR 136.1. An inert gas is bubbled through a 5-ml sample contained in a specifically designed purging chamber at ambient

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temperature. The purgeables are efficiently transferred from the aqueous phase to the vapor phase. The vapor is swept through a sorbent column where the purgeables are trapped. After purging is completed, the sorbent column is heated and backflushed with the inert gas to desorb the purgeables into a gas chromatographic column. The gas chromatograph is temperature programmed to separate the purgeables which are then detected with a mass spectrometer. Two field reagent blanks were prepared from reagent water and carried through the sampling and handling protocol to check for possible contamination.

4.0 ANALYTICAL RESULTS

All analytical results are presented on the laboratory reports in Appendix B. Results of analyses for benzene, toluene, ethylbenzene, and total xylenes (BTEX) performed for this and the previous six (6) quarterly reports are summarized on Table 3 and graphically exhibited in Figures 4, 5, 6, and 7. Results of analyses for purgeable halocarbons are summarized on Table 4. In water samples extracted from the eight (8) monitoring wells, benzene concentrations ranged from non-detected (less than 5 $\mu\text{g/l}$) to 4,500 $\mu\text{g/l}$, toluene concentrations ranged from non-detected (less than 5 $\mu\text{g/l}$) to 620 $\mu\text{g/l}$, ethylbenzene concentrations ranged from non-detected (less than 5 $\mu\text{g/l}$) to 2,400 $\mu\text{g/l}$, and concentrations of total xylenes ranged from non-detected (less than 5 $\mu\text{g/l}$) to 6,500 $\mu\text{g/l}$. BTEX concentrations did not exceed the method detection limits (5 $\mu\text{g/l}$) in sample blanks MW-001 and MW-002.

Concentrations of volatile organic compounds by EPA Test Method 624 were highest in monitoring wells MW-103, MW-201, MW-206, and MW-503. The respective concentrations of benzene, toluene, ethyl benzene, and total xylenes in samples from these wells in $\mu\text{g/l}$ were as follows: benzene - 1000, 830, 4500, 990; toluene - 30, 100, 620, 550; ethylbenzene - not detected, 32, 2400, 200; total xylenes - not detected, 210, 6500, 850. Lesser concentrations of these compounds were noted in samples from monitoring wells MW-203, MW-204, and MW-205. The respective concentrations of benzene, toluene, ethylbenzene, and total xylenes in samples from these wells in $\mu\text{g/l}$ were as follows: benzene - 80, 64, 81; toluene - not detected in any of these well samples; ethylbenzene - not detected in any of these well samples; total xylenes - not detected in any of these well samples. No volatile organic compounds were detected in the sample from monitoring well MW-104.

Additional volatile organic compounds were detected in several well samples by EPA Test Method 624. These include 40 $\mu\text{g/l}$ of trans-1,2-dichloroethene at MW-203, 5 $\mu\text{g/l}$ of trans-1,2-dichloroethene at MW-205, 7 $\mu\text{g/l}$ of 1,2-dichloroethane at MW-204, 59 $\mu\text{g/l}$ of 2-butanone at MW-204, and 12 $\mu\text{g/l}$ of chloroform in the sample blank MW-002, presumed to be a laboratory error. Acetone was detected at a concentrations of 54 $\mu\text{g/l}$ at MW-203, 94 $\mu\text{g/l}$ at MW-103, 120 $\mu\text{g/l}$ at MW-204, 510 $\mu\text{g/l}$ at MW-201, 2600 $\mu\text{g/l}$ at MW-503, 4300 $\mu\text{g/l}$ at MW-206. The source of increasing acetone is not known; it may originate offsite.

All well samples were also analyzed by EPA Test Method 601 for purgeable halocarbons. These tests were negative for all constituents except 35 $\mu\text{g/l}$ of trans-1,2-dichloroethene at MW-203 and 1.5 $\mu\text{g/l}$ at well MW-205 as well as 4 $\mu\text{g/l}$ of 1,2-dichloroethane at MW-204. Chloroform was detected in the sample blank MW-002 (6.5 $\mu\text{g/l}$); the detection of chloroform is attributed to laboratory error as it was not found in the sample blank MW-001, drawn from the same container.

FX-9 Wells

FX-9 Wells

FX-9 Wells

FX-9 Wells

TABLE 3

**SUMMARY OF ANALYTICAL TEST RESULTS
VOLATILE ORGANIC COMPOUNDS
(EPA Test Method 624)
Values in $\mu\text{g/l}$**

| MW No. | Date | Benzene | Ethyl benzene | Toluene | Total Xylenes |
|-----------|----------|---------|------------------|---------|------------------|
| 101 | Sept. 89 | NA | NA | NA | NA |
| | June 89 | NA | NA | NA | NA |
| | Mar. 89 | NA | NA | NA | NA |
| | Dec. 88 | 490 | 49 | 28 | ND<20 |
| | Sept. 88 | 310 | 34 | 10 | 13 |
| | June 88 | 620 | ND<50 | ND<50 | 100 |
| | Mar. 88 | 340 | ND<100 | ND<100 | ND<100 |
| 103 | Sept. 89 | 1000 | ND<20 | 30 | ND<20 |
| | June 89 | 700 | ND<20 | ND<20 | ND<20 |
| | Mar. 89 | 940 | ND<20 | ND<20 | ND<20 |
| | Dec. 88 | 370 | ND<5 | ND<5 | ND<5 |
| | Sept. 88 | 300 | ND<5 | ND<5 | 8 |
| | June 88 | 970 | ND<50 | 74 | ND<50 |
| | Mar. 88 | ND<5 | ND<5 | ND<5 | ND<5 |
| 104 | Sept. 89 | ND<5 | ND<5 | ND<5 | ND<5 |
| | June 89 | ND<5 | ND<5 | ND<5 | ND<5 |
| | Mar. 89 | ND<5 | ND<5 | ND<5 | ND<5 |
| | Dec. 88 | ND<5 | ND<5 | ND<5 | ND<5 |
| | Sept. 88 | ND<5 | ND<5 | ND<5 | ND<5 |
| | June 88 | ND<5 | ND<5 | ND<5 | ND<5 |
| | Mar. 88 | 110 | 23 | 68 | 17 |

TABLE 3

SUMMARY OF ANALYTICAL TEST RESULTS
VOLATILE ORGANIC COMPOUNDS
(EPA Test Method 624)
Values in $\mu\text{g/l}$
(Continued)

| MW No. | Date | <u>Benzene</u> | <u>Ethyl benzene</u> | <u>Toluene</u> | <u>Total Xylenes</u> |
|-----------|----------|----------------|--------------------------|----------------|--------------------------|
| 201 | Sept. 89 | 830 | 32 | 100 | 210 |
| | June 89 | 350 | ND<50 | ND<50 | 50 |
| | Mar. 89 | 210 | 24 | 27 | 47 |
| | Dec. 88 | 420 | 19 | 65 | 100 |
| | Sept. 88 | 520 | 110 | 210 | 400 |
| | June 88 | 1000 | ND<50 | 150 | 250 |
| | Mar. 88 | 5600 | 260 | 880 | 1400 |
| 203 | Sept. 89 | 80 | ND<5 | ND<5 | ND<5 |
| | June 89 | 110 | 5 | ND<5 | ND<5 |
| | Mar. 89 | 110 | ND<5 | ND<5 | ND<5 |
| | Dec. 88 | 64 | ND<5 | ND<5 | ND<5 |
| | Sept. 88 | 76 | ND<5 | ND<5 | ND<5 |
| | June 88 | 46 | ND<5 | ND<5 | ND<5 |
| | Mar. 88 | 103 | ND<5 | ND<5 | ND<5 |
| 204 | Sept. 89 | 64 | ND<5 | ND<5 | ND<5 |
| | June 89 | 76 | ND<5 | ND<5 | ND<5 |
| | Mar. 89 | 39 | ND<5 | ND<5 | ND<5 |
| | Dec. 88 | 33 | ND<5 | ND<5 | ND<5 |
| | Sept. 88 | 6 | ND<5 | ND<5 | ND<5 |
| | June 88 | 19 | ND<5 | ND<5 | ND<5 |
| | Mar. 88 | 120 | ND<20 | ND<20 | ND<20 |

TABLE 3

SUMMARY OF ANALYTICAL TEST RESULTS
VOLATILE ORGANIC COMPOUNDS
(EPA Test Method 624)
Values in $\mu\text{g/l}$
(Continued)

| MW No. | Date | Benzene | Ethyl benzene | Toluene | Total Xylenes |
|-----------|----------|---------|------------------------|---------|------------------|
| 205 | Sept. 89 | 81 | ND<5 | ND<5 | ND<5 |
| | June 89 | 120 | ND<5 | 5 | ND<5 |
| | Mar. 89 | 40 | ND<5 | ND<5 | ND<5 |
| | Dec. 88 | 120 | ND<5 | ND<5 | ND<5 |
| | Sept. 88 | 27 | ND<5 | ND<5 | ND<5 |
| | June 88 | 13 | ND<5 | ND<5 | ND<5 |
| | Mar. 88 | 74 | ND<5 | ND<5 | 8 |
| 206 | Sept. 89 | 4500 | 2400 | 620 | 6500 |
| | June 89 | 3100 | 2300 | 1200 | 8600 |
| | Mar. 89 | 2700 | 2400 | 3200 | 12000 |
| | Dec. 88 | 4300 | 2100 | 920 | 5500 |
| | Sept. 88 | 4200 | 2000 | 1000 | 6600 |
| | June 88 | 5800 | 2100 | 2400 | 4900 |
| | Mar. 88 | 6400 | 3400 | 3900 | 7300 |
| 501 | Sept. 89 | | *Free product present* | | |
| | June 89 | | *Free product present* | | |
| | Mar. 89 | | *Free product present* | | |
| | Dec. 88 | | *Free product present* | | |
| | Sept. 88 | | *Free product present* | | |
| | June 88 | | *Free product present* | | |
| | Mar. 88 | 4900 | 11000 | 9100 | 8200 |

TABLE 3

SUMMARY OF ANALYTICAL TEST RESULTS
VOLATILE ORGANIC COMPOUNDS
(EPA Test Method 624)
Values in $\mu\text{g/l}$
(Continued)

| MW No. | Date | Benzene | Ethyl benzene | Toluene | Total Xylenes |
|-----------|----------|-------------------|------------------------|---------|------------------|
| 502 | Sept. 89 | | *Free product present* | | |
| | June 89 | | *Free product present* | | |
| | Mar. 89 | 5300 | 1900 | 1200 | 7100 |
| | Dec. 88 | 6500 | 1500 | 860 | 5500 |
| | Sept. 88 | 13000 | 2800 | 1800 | 12000 |
| | June 88 | 950 | 62 | 79 | 16 |
| | Mar. 88 | 3600 | 120 | 400 | 2700 |
| 503 | Sept. 89 | 990 | 200 | 550 | 850 |
| | June 89 | 600 | 630 | 340 | 1200 |
| | Mar. 89 | 400 | 360 | 190 | 750 |
| | Dec. 88 | 1500 | 380 | 570 | 960 |
| | Sept. 88 | 800 | 300 | 280 | 910 |
| | June 88 | 600 | 340 | 140 | 600 |
| | Mar. 88 | 2700 | 1300 | 1300 | 2400 |
| P-6 | Sept. 89 | - Not operational | | | |
| | June 89 | - Not operational | | | |
| | Mar. 89 | - Not operational | | | |

TABLE 3

**SUMMARY OF ANALYTICAL TEST RESULTS
VOLATILE ORGANIC COMPOUNDS
(EPA Test Method 624)
Values in $\mu\text{g/l}$
(Continued)**

| MW No. | Date | Benzene | Ethyl benzene | Toluene | Total Xylenes |
|-----------|---------|---------|------------------|---------|------------------|
| 001* | Sept.89 | ND<5 | ND<5 | ND<5 | ND<5 |
| 002* | Sept.89 | ND<5 | ND<5 | ND<5 | ND<5 |

KEY

MW = Monitoring Well

NA = Not analyzed this quarter, because of insufficient well volume.

ND = This compound was not detected; the limit of detection for this analysis is the amount stated in the table above.

* = Sample Blank

TABLE 4
SUMMARY OF ANALYTICAL TEST RESULTS -
PURGEABLE HALOCARBON COMPOUNDS

| <u>Monitoring</u> <u>Well Number</u> | <u>Method 601</u> <u>Compounds Detected</u> | <u>Method 624</u> <u>(μg/l)</u> | <u>(μg/l)</u> |
|---|--|---|------------------------------|
| 103 | Acetone | N/A | 94 |
| 104 | None Detected | — | — |
| 201 ^a | Acetone | N/A | 510 |
| 203 | trans-1,2-Dichloroethene | 35 | 40 |
| | Acetone | N/A | 54 |
| 204 | Acetone | N/A | 120 |
| | 2-Butanone | N/A | 59 |
| | 1,2-Dichloroethane | 4 | 7 |
| 205 | trans-1,2-Dichloroethene | 1.5 | 5 |
| 206 | Acetone | N/A | 4,300 |
| 503 | Acetone | N/A | 2,600 |
| 001 ^b | None Detected | — | — |
| 002 ^b | Chloroform ^c | 6.5 | 12 |

KEY

a A higher than normal detection limits was used due to matrix interference.

b = Sample blank

c = Presumed laboratory error

N/A = Not applicable

5.0 CONCLUSIONS

The monitoring and analytical results derived in the first quarter of 1988 reveal several deviations from previous quarters (Tables 3 and 4). Analysis of the most recent results compared with the results from the previous quarter (July, 1989) indicate the following:


- o Free product thickness in monitoring well MW-501 slightly increased by .15 feet from .81 feet to .96 feet.
- o Free product thickness in monitoring well MW-504 decreased by .14 feet from 2.20 feet to 2.06 feet.
- o Free product thickness in monitoring well MW-502 decreased by .30 feet from 3.13 feet to 2.83 feet.
- o Benzene concentrations remained non-detected in MW-104; decreased in MW-203, MW-204, and MW-205; and increased in MW-103, MW-206, and MW-503.
- o Toluene concentrations remained non-detected in MW-104, MW-203, and MW-204; decreased in MW-205 and MW-206; and increased in MW-103, MW-201, MW-205, and MW-503.
- o Ethylbenzene concentrations remained non-detected in MW-103, MW-104, MW-204, and MW-205; decreased in MW-203 and MW-503; increased in MW-206; and decreased to levels below previous detection limits in MW-201.
- o Total xylene concentrations remained non-detected in MW-103, MW-104, MW-203, MW-204, and MW-205; decreased in MW-206 and MW-503; and increased in MW-201.
- o Acetone concentrations appeared to be elevated this quarter ranging from non-detected to 4500 $\mu\text{g/l}$.
- o In general, analytical results of water samples from monitoring wells MW-104, MW-206, and MW-503 remain consistent with the results from previous quarters.
- o Analytical results of water samples from monitoring wells MW-203, MW-204, MW-205, exhibited a decrease in overall BTEX levels.

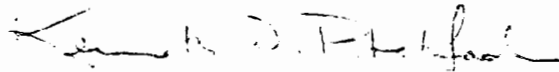


- o Analytical results of water samples from monitoring well MW-103 and MW-201 exhibited a slight increase in overall BTEX levels.
- o Chloroform concentrations detected in sample blank MW-002 are presumed to be a laboratory error.

Respectfully submitted,

ENSR Consulting and Engineering


James Broad
Project Manager


Kenneth W. Pitchford, C.E.G. 1461
Senior Hydrogeologist

5500005.SEP

APPENDIX A
CHAIN-OF-CUSTODY DOCUMENTS

CHAIN OF CUSTODY RECORD

924310

page 1 of 2

| Client/Project Name | | Project Location | | ANALYSES | | | | | | | | | | |
|--------------------------------|---------|---------------------------|-------------------|-----------------------------|---------|--------------------------------------|--|--|--|-----------|------|--|--|--|
| Project No. | | Field Logbook No. | | | | | | | | | | | | |
| Sampler: (Signature) | | Chain of Custody Tape No. | | | | | | | | | | | | |
| Sample No./ Identification | Date | Time | Lab Sample Number | Type of Sample | REMARKS | | | | | | | | | |
| MW-104 | 8/29/89 | | | Liquid | X | X | | | | | | | | |
| MW-204 | ↓ | | | | X | X | | | | | | | | |
| MW-103 | ↓ | | | | X | X | | | | | | | | |
| MW-001 | 8/29/89 | | | | X | X | | | | | | | | |
| MW-203 | 8/30/89 | | | | X | X | | | | | | | | |
| MW-205 | ↓ | | | | X | X | | | | | | | | |
| MW-201 | ↓ | | | | X | X | | | | | | | | |
| MW-503 | 8/30/89 | | | Liquid | X | X | | | | | | | | |
| Relinquished by: (Signature) | | | | Date | Time | Received by: (Signature) | | | | Date | Time | | | |
| Brendly [Signature] | | | | 8/31/89 | 8:35 | Maurice T. Miller | | | | 8/31/89 | 8:35 | | | |
| Relinquished by: (Signature) | | | | Date | Time | Received by: (Signature) | | | | Date | Time | | | |
| Maurice T. Miller | | | | 8/31/89 | 9:30 | | | | | | | | | |
| Relinquished by: (Signature) | | | | Date | Time | Received for Laboratory: (Signature) | | | | Date | Time | | | |
| | | | | | | [Signature] | | | | 8/31/89 | 9:30 | | | |
| Sample Disposal Method: | | | | Disposed of by: (Signature) | | | | | | Date | Time | | | |
| | | | | | | | | | | | | | | |
| SAMPLE COLLECTOR | | | | ANALYTICAL LABORATORY | | | | | | ENSUR | | | | |
| ENSUR Corporation | | | | | | | | | | pg 1 of 2 | | | | |
| 19782 MacArthur Blvd., STE 365 | | | | | | | | | | | | | | |
| Irvine, CA 92715 | | | | | | | | | | | | | | |
| (714) 476-0321 | | | | | | | | | | | | | | |
| ATTN: BRAD STRAUCH | | | | | | | | | | | | | | |

CHAIN OF CUSTODY RECORD

92.431

92.431

| Client/Project Name POWERLINE OIL CO | | | Project Location SANTA FE SPRINGS | | | ANALYSES 601 624 | | | | | | |
|--|---------|------|---|----------------|---|----------------------------|--|--|--|--------------------------|----------------|---------|
| Project No. 5500-005-102 | | | Field Logbook No. | | | | | | | | | |
| Sampler: (Signature) <i>Bundy</i> | | | Chain of Custody Tape No. | | | | | | | | | |
| Sample No./ Identification | Date | Time | Lab Sample Number | Type of Sample | | | | | | | | REMARKS |
| MW-206 | 8/30/89 | | | Liquid | X | X | | | | | | |
| MW-002 | 8/30/89 | | | Liquid | X | X | | | | | | |
| | | | | | | | | | | | | |
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| | | | | | | | | | | | | |
| Relinquished by: (Signature) <i>Bundy</i> | | | | | Date 8/31/89 | Time 8:35 | Received by: (Signature) <i>Murat Miller</i> | | | Date 8/31 | Time 8:35 | |
| Relinquished by: (Signature) <i>Murat Miller</i> | | | | | Date 8/31/89 | Time 4:30 | Received by: (Signature) _____ | | | Date _____ | Time _____ | |
| Relinquished by: (Signature) _____ | | | | | Date _____ | Time _____ | Received for Laboratory: (Signature) <i>[Signature]</i> | | | Date 8/31/89 | Time 2:30 A | |
| Sample Disposal Method: | | | | | Disposed of by: (Signature) _____ | | | | | Date _____ | Time _____ | |
| SAMPLE COLLECTOR ENSR Corporation 19782 MacArthur Blvd., STE 365 Irvine, CA 92715 (714) 476-0321 | | | | | ANALYTICAL LABORATORY <i>CRL</i> | | | | | ENSR <i>AS 2 of 2</i> | | |

APPENDIX B
LABORATORY REPORTS

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-I-CRL
FAX: (714) 891-5917

SEP 18 1989

September 14, 1989

ENSR
19782 MACARTHUR BLVD., SUITE 365
IRVINE, CA 92715
ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-001/010
Date Sampled: 29/30-AUG-1989
Date Sample Rec'd: 31-AUG-1989
Project: (5500-005-102) POWERINE OIL CO.

Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-8924310-001/010 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached.

Please note that ND() means not detected at the detection limit expressed within the parentheses.

Analytical results should not be considered reliable unless the concentration in the sample exceeds 5 times the detection limit or 10 times the amount in the associated blank.

TS
Reviewed

[Signature]
Approved

The Report Cover Letter is an integral part of this report.

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 FAX: (714) 891-5917

Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-003
 Date Sampled: 29-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 6-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-103

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 1 |
| Bromomethane | ND | ND | 1 |
| Vinyl Chloride | ND | ND | 1 |
| Chloroethane | ND | ND | 1 |
| Methylene Chloride | ND | 0.6 | 1 |
| Trichlorofluoromethane | ND | ND | 1 |
| 1,1-Dichloroethene | ND | ND | 1 |
| 1,1-Dichloroethane | ND | ND | 1 |
| trans-1,2-Dichloroethene | ND | ND | 1 |
| Chloroform | ND | ND | 1 |
| 1,2-Dichloroethane | ND | ND | 1 |
| 1,1,1-Trichloroethane | ND | ND | 1 |
| Carbon Tetrachloride | ND | ND | 1 |
| Bromodichloromethane | ND | ND | 1 |
| 1,2-Dichloropropane | ND | ND | 1 |
| cis-1,3-Dichloropropene | ND | ND | 1 |
| Trichloroethene | ND | ND | 1 |
| Dibromochloromethane | ND | ND | 1 |
| 1,1,2-Trichloroethane | ND | ND | 1 |
| trans-1,3-Dichloropropene | ND | ND | 1 |
| 2-Chloroethylvinyl ether | ND | ND | 1 |
| Bromoform | ND | ND | 1 |
| Tetrachloroethene | ND | ND | 1 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 1 |
| Chlorobenzene | ND | ND | 1 |
| 1,3-Dichlorobenzene | ND | ND | 1 |
| 1,2-Dichlorobenzene | ND | ND | 1 |
| 1,4-Dichlorobenzene | ND | ND | 1 |

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Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-003
 Date Sampled: 29-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 8-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-103

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 50 |
| Bromomethane | ND | ND | 50 |
| Vinyl Chloride | ND | ND | 50 |
| Chloroethane | ND | ND | 50 |
| Methylene Chloride | ND | ND | 20 |
| Acetone | 94. | ND | 50 |
| Carbon Disulfide | ND | ND | 20 |
| 1,1-Dichloroethene | ND | ND | 20 |
| 1,1-Dichloroethane | ND | ND | 20 |
| trans-1,2-Dichloroethene | ND | ND | 20 |
| Chloroform | ND | ND | 20 |
| 1,2-Dichloroethane | ND | ND | 20 |
| 2-Butanone | ND | ND | 50 |
| 1,1,1-Trichloroethane | ND | ND | 20 |
| Carbon Tetrachloride | ND | ND | 20 |
| Vinyl Acetate | ND | ND | 50 |
| Bromodichloromethane | ND | ND | 20 |
| 1,2-Dichloropropane | ND | ND | 20 |
| trans-1,3-Dichloropropene | ND | ND | 20 |
| Trichloroethene | ND | ND | 20 |
| Dibromochloromethane | ND | ND | 20 |
| 1,1,2-Trichloroethane | ND | ND | 20 |
| Benzene | 1,000. | ND | 20 |
| cis-1,3-Dichloropropene | ND | ND | 20 |
| 2-Chloroethylvinyl ether | ND | ND | 50 |
| Bromoform | ND | ND | 20 |
| 4-Methyl-2-pentanone | ND | ND | 50 |
| 2-Hexanone | ND | ND | 50 |
| Tetrachloroethene | ND | ND | 20 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 20 |
| Toluene | 30. | ND | 20 |
| Chlorobenzene | ND | ND | 20 |
| Ethylbenzene | ND | ND | 20 |
| Styrene | ND | ND | 20 |
| Xylenes, Total | ND | ND | 20 |

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Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-001
 Date Sampled: 29-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 7-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-104

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 1 |
| Bromomethane | ND | ND | 1 |
| Vinyl Chloride | ND | ND | 1 |
| Chloroethane | ND | ND | 1 |
| Methylene Chloride | ND | 0.4 | 1 |
| Trichlorofluoromethane | ND | ND | 1 |
| 1,1-Dichloroethene | ND | ND | 1 |
| 1,1-Dichloroethane | ND | ND | 1 |
| trans-1,2-Dichloroethene | ND | ND | 1 |
| Chloroform | ND | ND | 1 |
| 1,2-Dichloroethane | ND | ND | 1 |
| 1,1,1-Trichloroethane | ND | ND | 1 |
| Carbon Tetrachloride | ND | ND | 1 |
| Bromodichloromethane | ND | ND | 1 |
| 1,2-Dichloropropane | ND | ND | 1 |
| cis-1,3-Dichloropropene | ND | ND | 1 |
| Trichloroethene | ND | ND | 1 |
| Dibromochloromethane | ND | ND | 1 |
| 1,1,2-Trichloroethane | ND | ND | 1 |
| trans-1,3-Dichloropropene | ND | ND | 1 |
| 2-Chloroethylvinyl ether | ND | ND | 1 |
| Bromoform | ND | ND | 1 |
| Tetrachloroethene | ND | ND | 1 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 1 |
| Chlorobenzene | ND | ND | 1 |
| 1,3-Dichlorobenzene | ND | ND | 1 |
| 1,2-Dichlorobenzene | ND | ND | 1 |
| 1,4-Dichlorobenzene | ND | ND | 1 |

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Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-001
 Date Sampled: 29-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 7-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-104

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 10 |
| Bromomethane | ND | ND | 10 |
| Vinyl Chloride | ND | ND | 10 |
| Chloroethane | ND | ND | 10 |
| Methylene Chloride | ND | ND | 5 |
| Acetone | ND | ND | 10 |
| Carbon Disulfide | ND | ND | 5 |
| 1,1-Dichloroethene | ND | ND | 5 |
| 1,1-Dichloroethane | ND | ND | 5 |
| trans-1,2-Dichloroethene | ND | ND | 5 |
| Chloroform | ND | ND | 5 |
| 1,2-Dichloroethane | ND | ND | 5 |
| 2-Butanone | ND | ND | 10 |
| 1,1,1-Trichloroethane | ND | ND | 5 |
| Carbon Tetrachloride | ND | ND | 5 |
| Vinyl Acetate | ND | ND | 10 |
| Bromodichloromethane | ND | ND | 5 |
| 1,2-Dichloropropane | ND | ND | 5 |
| trans-1,3-Dichloropropene | ND | ND | 5 |
| Trichloroethene | ND | ND | 5 |
| Dibromochloromethane | ND | ND | 5 |
| 1,1,2-Trichloroethane | ND | ND | 5 |
| Benzene | ND | ND | 5 |
| cis-1,3-Dichloropropene | ND | ND | 5 |
| 2-Chloroethylvinyl ether | ND | ND | 10 |
| Bromoform | ND | ND | 5 |
| 4-Methyl-2-pentanone | ND | ND | 10 |
| 2-Hexanone | ND | ND | 10 |
| Tetrachloroethene | ND | ND | 5 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 5 |
| Toluene | ND | ND | 5 |
| Chlorobenzene | ND | ND | 5 |
| Ethylbenzene | ND | ND | 5 |
| Styrene | ND | ND | 5 |
| Xylenes, Total | ND | ND | 5 |

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Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-007
 Date Sampled: 30-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 6-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-201

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 10 |
| Bromomethane | ND | ND | 10 |
| Vinyl Chloride | ND | ND | 10 |
| Chloroethane | ND | ND | 10 |
| Methylene Chloride | ND | 6 | 10 |
| Trichlorofluoromethane | ND | ND | 10 |
| 1,1-Dichloroethene | ND | ND | 10 |
| 1,1-Dichloroethane | ND | ND | 10 |
| trans-1,2-Dichloroethene | ND | ND | 10 |
| Chloroform | ND | ND | 10 |
| 1,2-Dichloroethane | ND | ND | 10 |
| 1,1,1-Trichloroethane | ND | ND | 10 |
| Carbon Tetrachloride | ND | ND | 10 |
| Bromodichloromethane | ND | ND | 10 |
| 1,2-Dichloropropane | ND | ND | 10 |
| cis-1,3-Dichloropropene | ND | ND | 10 |
| Trichloroethene | ND | ND | 10 |
| Dibromochloromethane | ND | ND | 10 |
| 1,1,2-Trichloroethane | ND | ND | 10 |
| trans-1,3-Dichloropropene | ND | ND | 10 |
| 2-Chloroethylvinyl ether | ND | ND | 10 |
| Bromoform | ND | ND | 10 |
| Tetrachloroethene | ND | ND | 10 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 10 |
| Chlorobenzene | ND | ND | 10 |
| 1,3-Dichlorobenzene | ND | ND | 10 |
| 1,2-Dichlorobenzene | ND | ND | 10 |
| 1,4-Dichlorobenzene | ND | ND | 10 |

NOTE: Higher detection limits due to sample matrix.

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Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-007
 Date Sampled: 30-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 8-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-201

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 50 |
| Bromomethane | ND | ND | 50 |
| Vinyl Chloride | ND | ND | 50 |
| Chloroethane | ND | ND | 50 |
| Methylene Chloride | ND | ND | 20 |
| Acetone | 510. | ND | 50 |
| Carbon Disulfide | ND | ND | 20 |
| 1,1-Dichloroethene | ND | ND | 20 |
| 1,1-Dichloroethane | ND | ND | 20 |
| trans-1,2-Dichloroethene | ND | ND | 20 |
| Chloroform | ND | ND | 20 |
| 1,2-Dichloroethane | ND | ND | 20 |
| 2-Butanone | ND | ND | 50 |
| 1,1,1-Trichloroethane | ND | ND | 20 |
| Carbon Tetrachloride | ND | ND | 20 |
| Vinyl Acetate | ND | ND | 50 |
| Bromodichloromethane | ND | ND | 20 |
| 1,2-Dichloropropane | ND | ND | 20 |
| trans-1,3-Dichloropropene | ND | ND | 20 |
| Trichloroethene | ND | ND | 20 |
| Dibromochloromethane | ND | ND | 20 |
| 1,1,2-Trichloroethane | ND | ND | 20 |
| Benzene | 830. | ND | 20 |
| cis-1,3-Dichloropropene | ND | ND | 20 |
| 2-Chloroethylvinyl ether | ND | ND | 50 |
| Bromoform | ND | ND | 20 |
| 4-Methyl-2-pentanone | ND | ND | 50 |
| 2-Hexanone | ND | ND | 50 |
| Tetrachloroethene | ND | ND | 20 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 20 |
| Toluene | 100. | ND | 20 |
| Chlorobenzene | ND | ND | 20 |
| Ethylbenzene | 32. | ND | 20 |
| Styrene | ND | ND | 20 |
| Xylenes, Total | 210. | ND | 20 |

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 FAX: (714) 891-5917

Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-005
 Date Sampled: 30-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 6-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-203

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 1 |
| Bromomethane | ND | ND | 1 |
| Vinyl Chloride | ND | ND | 1 |
| Chloroethane | ND | ND | 1 |
| Methylene Chloride | ND | 0.6 | 1 |
| Trichlorofluoromethane | ND | ND | 1 |
| 1,1-Dichloroethene | ND | ND | 1 |
| 1,1-Dichloroethane | ND | ND | 1 |
| trans-1,2-Dichloroethene | 35. | ND | 1 |
| Chloroform | ND | ND | 1 |
| 1,2-Dichloroethane | ND | ND | 1 |
| 1,1,1-Trichloroethane | ND | ND | 1 |
| Carbon Tetrachloride | ND | ND | 1 |
| Bromodichloromethane | ND | ND | 1 |
| 1,2-Dichloropropane | ND | ND | 1 |
| cis-1,3-Dichloropropene | ND | ND | 1 |
| Trichloroethene | ND | ND | 1 |
| Dibromochloromethane | ND | ND | 1 |
| 1,1,2-Trichloroethane | ND | ND | 1 |
| trans-1,3-Dichloropropene | ND | ND | 1 |
| 2-Chloroethylvinyl ether | ND | ND | 1 |
| Bromoform | ND | ND | 1 |
| Tetrachloroethene | ND | ND | 1 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 1 |
| Chlorobenzene | ND | ND | 1 |
| 1,3-Dichlorobenzene | ND | ND | 1 |
| 1,2-Dichlorobenzene | ND | ND | 1 |
| 1,4-Dichlorobenzene | ND | ND | 1 |

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 FAX: (714) 891-5917

Laboratory Report

ENSR

19782 MacArthur Blvd., Suite 365

Irvine, CA 92715

ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-005

Date Sampled: 30-AUG-1989

Date Sample Rec'd: 31-AUG-1989

Date Analyzed: 8-SEP-1989

Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.

Sample ID: MW-203

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 10 |
| Bromomethane | ND | ND | 10 |
| Vinyl Chloride | ND | ND | 10 |
| Chloroethane | ND | ND | 10 |
| Methylene Chloride | ND | ND | 5 |
| Acetone | 54. | ND | 10 |
| Carbon Disulfide | ND | ND | 5 |
| 1,1-Dichloroethene | ND | ND | 5 |
| 1,1-Dichloroethane | ND | ND | 5 |
| trans-1,2-Dichloroethene | 40. | ND | 5 |
| Chloroform | ND | ND | 5 |
| 1,2-Dichloroethane | ND | ND | 5 |
| 2-Butanone | ND | ND | 10 |
| 1,1,1-Trichloroethane | ND | ND | 5 |
| Carbon Tetrachloride | ND | ND | 5 |
| Vinyl Acetate | ND | ND | 10 |
| Bromodichloromethane | ND | ND | 5 |
| 1,2-Dichloropropane | ND | ND | 5 |
| trans-1,3-Dichloropropene | ND | ND | 5 |
| Trichloroethene | ND | ND | 5 |
| Dibromochloromethane | ND | ND | 5 |
| 1,1,2-Trichloroethane | ND | ND | 5 |
| Benzene | 80. | ND | 5 |
| cis-1,3-Dichloropropene | ND | ND | 5 |
| 2-Chloroethylvinyl ether | ND | ND | 10 |
| Bromoform | ND | ND | 5 |
| 4-Methyl-2-pentanone | ND | ND | 10 |
| 2-Hexanone | ND | ND | 10 |
| Tetrachloroethene | ND | ND | 5 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 5 |
| Toluene | ND | ND | 5 |
| Chlorobenzene | ND | ND | 5 |
| Ethylbenzene | ND | ND | 5 |
| Styrene | ND | ND | 5 |
| Xylenes, Total | ND | ND | 5 |

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 FAX: (714) 891-5917

Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-002
 Date Sampled: 29-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 7-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-204

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 1 |
| Bromomethane | ND | ND | 1 |
| Vinyl Chloride | ND | ND | 1 |
| Chloroethane | ND | ND | 1 |
| Methylene Chloride | ND | 0.4 | 1 |
| Trichlorofluoromethane | ND | ND | 1 |
| 1,1-Dichloroethene | ND | ND | 1 |
| 1,1-Dichloroethane | ND | ND | 1 |
| trans-1,2-Dichloroethene | ND | ND | 1 |
| Chloroform | ND | ND | 1 |
| 1,2-Dichloroethane | 4. | ND | 1 |
| 1,1,1-Trichloroethane | ND | ND | 1 |
| Carbon Tetrachloride | ND | ND | 1 |
| Bromodichloromethane | ND | ND | 1 |
| 1,2-Dichloropropane | ND | ND | 1 |
| cis-1,3-Dichloropropene | ND | ND | 1 |
| Trichloroethene | ND | ND | 1 |
| Dibromochloromethane | ND | ND | 1 |
| 1,1,2-Trichloroethane | ND | ND | 1 |
| trans-1,3-Dichloropropene | ND | ND | 1 |
| 2-Chloroethylvinyl ether | ND | ND | 1 |
| Bromoform | ND | ND | 1 |
| Tetrachloroethene | ND | ND | 1 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 1 |
| Chlorobenzene | ND | ND | 1 |
| 1,3-Dichlorobenzene | ND | ND | 1 |
| 1,2-Dichlorobenzene | ND | ND | 1 |
| 1,4-Dichlorobenzene | ND | ND | 1 |

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 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-002
 Date Sampled: 29-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 8-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-204

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 10 |
| Bromomethane | ND | ND | 10 |
| Vinyl Chloride | ND | ND | 10 |
| Chloroethane | ND | ND | 10 |
| Methylene Chloride | ND | ND | 5 |
| Acetone | 120. | ND | 10 |
| Carbon Disulfide | ND | ND | 5 |
| 1,1-Dichloroethene | ND | ND | 5 |
| 1,1-Dichloroethane | ND | ND | 5 |
| trans-1,2-Dichloroethene | ND | ND | 5 |
| Chloroform | ND | ND | 5 |
| 1,2-Dichloroethane | 7. | ND | 5 |
| 2-Butanone | 59. | ND | 10 |
| 1,1,1-Trichloroethane | ND | ND | 5 |
| Carbon Tetrachloride | ND | ND | 5 |
| Vinyl Acetate | ND | ND | 10 |
| Bromodichloromethane | ND | ND | 5 |
| 1,2-Dichloropropane | ND | ND | 5 |
| trans-1,3-Dichloropropene | ND | ND | 5 |
| Trichloroethene | ND | ND | 5 |
| Dibromochloromethane | ND | ND | 5 |
| 1,1,2-Trichloroethane | ND | ND | 5 |
| Benzene | 64. | ND | 5 |
| cis-1,3-Dichloropropene | ND | ND | 5 |
| 2-Chloroethylvinyl ether | ND | ND | 10 |
| Bromoform | ND | ND | 5 |
| 4-Methyl-2-pentanone | ND | ND | 10 |
| 2-Hexanone | ND | ND | 10 |
| Tetrachloroethene | ND | ND | 5 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 5 |
| Toluene | ND | ND | 5 |
| Chlorobenzene | ND | ND | 5 |
| Ethylbenzene | ND | ND | 5 |
| Styrene | ND | ND | 5 |
| Xylenes, Total | ND | ND | 5 |

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Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-006
 Date Sampled: 30-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 7-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-205

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 1 |
| Bromomethane | ND | ND | 1 |
| Vinyl Chloride | ND | ND | 1 |
| Chloroethane | ND | ND | 1 |
| Methylene Chloride | ND | 0.4 | 1 |
| Trichlorofluoromethane | ND | ND | 1 |
| 1,1-Dichloroethene | ND | ND | 1 |
| 1,1-Dichloroethane | ND | ND | 1 |
| trans-1,2-Dichloroethene | 1.5 | ND | 1 |
| Chloroform | ND | ND | 1 |
| 1,2-Dichloroethane | ND | ND | 1 |
| 1,1,1-Trichloroethane | ND | ND | 1 |
| Carbon Tetrachloride | ND | ND | 1 |
| Bromodichloromethane | ND | ND | 1 |
| 1,2-Dichloropropane | ND | ND | 1 |
| cis-1,3-Dichloropropene | ND | ND | 1 |
| Trichloroethene | ND | ND | 1 |
| Dibromochloromethane | ND | ND | 1 |
| 1,1,2-Trichloroethane | ND | ND | 1 |
| trans-1,3-Dichloropropene | ND | ND | 1 |
| 2-Chloroethylvinyl ether | ND | ND | 1 |
| Bromoform | ND | ND | 1 |
| Tetrachloroethene | ND | ND | 1 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 1 |
| Chlorobenzene | ND | ND | 1 |
| 1,3-Dichlorobenzene | ND | ND | 1 |
| 1,2-Dichlorobenzene | ND | ND | 1 |
| 1,4-Dichlorobenzene | ND | ND | 1 |

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Laboratory Report

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 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-006
 Date Sampled: 30-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 8-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-205

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 10 |
| Bromomethane | ND | ND | 10 |
| Vinyl Chloride | ND | ND | 10 |
| Chloroethane | ND | ND | 10 |
| Methylene Chloride | ND | ND | 5 |
| Acetone | ND | ND | 10 |
| Carbon Disulfide | ND | ND | 5 |
| 1,1-Dichloroethene | ND | ND | 5 |
| 1,1-Dichloroethane | ND | ND | 5 |
| trans-1,2-Dichloroethene | 5. | ND | 5 |
| Chloroform | ND | ND | 5 |
| 1,2-Dichloroethane | ND | ND | 5 |
| 2-Butanone | ND | ND | 10 |
| 1,1,1-Trichloroethane | ND | ND | 5 |
| Carbon Tetrachloride | ND | ND | 5 |
| Vinyl Acetate | ND | ND | 10 |
| Bromodichloromethane | ND | ND | 5 |
| 1,2-Dichloropropane | ND | ND | 5 |
| trans-1,3-Dichloropropene | ND | ND | 5 |
| Trichloroethene | ND | ND | 5 |
| Dibromochloromethane | ND | ND | 5 |
| 1,1,2-Trichloroethane | ND | ND | 5 |
| Benzene | 81. | ND | 5 |
| cis-1,3-Dichloropropene | ND | ND | 5 |
| 2-Chloroethylvinyl ether | ND | ND | 10 |
| Bromoform | ND | ND | 5 |
| 4-Methyl-2-pentanone | ND | ND | 10 |
| 2-Hexanone | ND | ND | 10 |
| Tetrachloroethene | ND | ND | 5 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 5 |
| Toluene | ND | ND | 5 |
| Chlorobenzene | ND | ND | 5 |
| Ethylbenzene | ND | ND | 5 |
| Styrene | ND | ND | 5 |
| Xylenes, Total | ND | ND | 5 |

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Laboratory Report

ENSR
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Irvine, CA 92715
ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-009
Date Sampled: 30-AUG-1989
Date Sample Rec'd: 31-AUG-1989
Date Analyzed: 8-SEP-1989
Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
Sample ID: MW-206

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 10 |
| Bromomethane | ND | ND | 10 |
| Vinyl Chloride | ND | ND | 10 |
| Chloroethane | ND | ND | 10 |
| Methylene Chloride | ND | 6 | 10 |
| Trichlorofluoromethane | ND | ND | 10 |
| 1,1-Dichloroethene | ND | ND | 10 |
| 1,1-Dichloroethane | ND | ND | 10 |
| trans-1,2-Dichloroethene | ND | ND | 10 |
| Chloroform | ND | ND | 10 |
| 1,2-Dichloroethane | ND | ND | 10 |
| 1,1,1-Trichloroethane | ND | ND | 10 |
| Carbon Tetrachloride | ND | ND | 10 |
| Bromodichloromethane | ND | ND | 10 |
| 1,2-Dichloropropane | ND | ND | 10 |
| cis-1,3-Dichloropropene | ND | ND | 10 |
| Trichloroethene | ND | ND | 10 |
| Dibromochloromethane | ND | ND | 10 |
| 1,1,2-Trichloroethane | ND | ND | 10 |
| trans-1,3-Dichloropropene | ND | ND | 10 |
| 2-Chloroethylvinyl ether | ND | ND | 10 |
| Bromoform | ND | ND | 10 |
| Tetrachloroethene | ND | ND | 10 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 10 |
| Chlorobenzene | ND | ND | 10 |
| 1,3-Dichlorobenzene | ND | ND | 10 |
| 1,2-Dichlorobenzene | ND | ND | 10 |
| 1,4-Dichlorobenzene | ND | ND | 10 |

NOTE: Higher detection limits due to sample matrix.

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Laboratory Report

ENSR
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 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-009
 Date Sampled: 30-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 8-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-206

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 500 |
| Bromomethane | ND | ND | 500 |
| Vinyl Chloride | ND | ND | 500 |
| Chloroethane | ND | ND | 500 |
| Methylene Chloride | ND | ND | 200 |
| Acetone | 4,300. | ND | 500 |
| Carbon Disulfide | ND | ND | 200 |
| 1,1-Dichloroethene | ND | ND | 200 |
| 1,1-Dichloroethane | ND | ND | 200 |
| trans-1,2-Dichloroethene | ND | ND | 200 |
| Chloroform | ND | ND | 200 |
| 1,2-Dichloroethane | ND | ND | 200 |
| 2-Butanone | ND | ND | 500 |
| 1,1,1-Trichloroethane | ND | ND | 200 |
| Carbon Tetrachloride | ND | ND | 200 |
| Vinyl Acetate | ND | ND | 500 |
| Bromodichloromethane | ND | ND | 200 |
| 1,2-Dichloropropane | ND | ND | 200 |
| trans-1,3-Dichloropropene | ND | ND | 200 |
| Trichloroethene | ND | ND | 200 |
| Dibromochloromethane | ND | ND | 200 |
| 1,1,2-Trichloroethane | ND | ND | 200 |
| Benzene | 4,500. | ND | 200 |
| cis-1,3-Dichloropropene | ND | ND | 200 |
| 2-Chloroethylvinyl ether | ND | ND | 500 |
| Bromoform | ND | ND | 200 |
| 4-Methyl-2-pentanone | ND | ND | 500 |
| 2-Hexanone | ND | ND | 500 |
| Tetrachloroethene | ND | ND | 200 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 200 |
| Toluene | 620. | ND | 200 |
| Chlorobenzene | ND | ND | 200 |
| Ethylbenzene | 2,400. | ND | 200 |
| Styrene | ND | ND | 200 |
| Xylenes, Total | 6,500. | ND | 200 |

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Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-008
 Date Sampled: 30-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 6-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-503

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 10 |
| Bromomethane | ND | ND | 10 |
| Vinyl Chloride | ND | ND | 10 |
| Chloroethane | ND | ND | 10 |
| Methylene Chloride | ND | 6 | 10 |
| Trichlorofluoromethane | ND | ND | 10 |
| 1,1-Dichloroethene | ND | ND | 10 |
| 1,1-Dichloroethane | ND | ND | 10 |
| trans-1,2-Dichloroethene | ND | ND | 10 |
| Chloroform | ND | ND | 10 |
| 1,2-Dichloroethane | ND | ND | 10 |
| 1,1,1-Trichloroethane | ND | ND | 10 |
| Carbon Tetrachloride | ND | ND | 10 |
| Bromodichloromethane | ND | ND | 10 |
| 1,2-Dichloropropane | ND | ND | 10 |
| cis-1,3-Dichloropropene | ND | ND | 10 |
| Trichloroethene | ND | ND | 10 |
| Dibromochloromethane | ND | ND | 10 |
| 1,1,2-Trichloroethane | ND | ND | 10 |
| trans-1,3-Dichloropropene | ND | ND | 10 |
| 2-Chloroethylvinyl ether | ND | ND | 10 |
| Bromoform | ND | ND | 10 |
| Tetrachloroethene | ND | ND | 10 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 10 |
| Chlorobenzene | ND | ND | 10 |
| 1,3-Dichlorobenzene | ND | ND | 10 |
| 1,2-Dichlorobenzene | ND | ND | 10 |
| 1,4-Dichlorobenzene | ND | ND | 10 |

NOTE: Higher detection limits due to sample matrix.

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 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-008
 Date Sampled: 30-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 8-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-503

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 100 |
| Bromomethane | ND | ND | 100 |
| Vinyl Chloride | ND | ND | 100 |
| Chloroethane | ND | ND | 100 |
| Methylene Chloride | ND | ND | 50 |
| Acetone | 2,600. | ND | 100 |
| Carbon Disulfide | ND | ND | 50 |
| 1,1-Dichloroethene | ND | ND | 50 |
| 1,1-Dichloroethane | ND | ND | 50 |
| trans-1,2-Dichloroethene | ND | ND | 50 |
| Chloroform | ND | ND | 50 |
| 1,2-Dichloroethane | ND | ND | 50 |
| 2-Butanone | ND | ND | 100 |
| 1,1,1-Trichloroethane | ND | ND | 50 |
| Carbon Tetrachloride | ND | ND | 50 |
| Vinyl Acetate | ND | ND | 100 |
| Bromodichloromethane | ND | ND | 50 |
| 1,2-Dichloropropane | ND | ND | 50 |
| trans-1,3-Dichloropropene | ND | ND | 50 |
| Trichloroethene | ND | ND | 50 |
| Dibromochloromethane | ND | ND | 50 |
| 1,1,2-Trichloroethane | ND | ND | 50 |
| Benzene | 990. | ND | 50 |
| cis-1,3-Dichloropropene | ND | ND | 50 |
| 2-Chloroethylvinyl ether | ND | ND | 100 |
| Bromoform | ND | ND | 50 |
| 4-Methyl-2-pentanone | ND | ND | 100 |
| 2-Hexanone | ND | ND | 100 |
| Tetrachloroethene | ND | ND | 50 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 50 |
| Toluene | 550. | ND | 50 |
| Chlorobenzene | ND | ND | 50 |
| Ethylbenzene | 200. | ND | 50 |
| Styrene | ND | ND | 50 |
| Xylenes, Total | 850. | ND | 50 |

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Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-004
 Date Sampled: 29-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 7-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-001

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 1 |
| Bromomethane | ND | ND | 1 |
| Vinyl Chloride | ND | ND | 1 |
| Chloroethane | ND | ND | 1 |
| Methylene Chloride | ND | 0.4 | 1 |
| Trichlorofluoromethane | ND | ND | 1 |
| 1,1-Dichloroethene | ND | ND | 1 |
| 1,1-Dichloroethane | ND | ND | 1 |
| trans-1,2-Dichloroethene | ND | ND | 1 |
| Chloroform | ND | ND | 1 |
| 1,2-Dichloroethane | ND | ND | 1 |
| 1,1,1-Trichloroethane | ND | ND | 1 |
| Carbon Tetrachloride | ND | ND | 1 |
| Bromodichloromethane | ND | ND | 1 |
| 1,2-Dichloropropane | ND | ND | 1 |
| cis-1,3-Dichloropropene | ND | ND | 1 |
| Trichloroethene | ND | ND | 1 |
| Dibromochloromethane | ND | ND | 1 |
| 1,1,2-Trichloroethane | ND | ND | 1 |
| trans-1,3-Dichloropropene | ND | ND | 1 |
| 2-Chloroethylvinyl ether | ND | ND | 1 |
| Bromoform | ND | ND | 1 |
| Tetrachloroethene | ND | ND | 1 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 1 |
| Chlorobenzene | ND | ND | 1 |
| 1,3-Dichlorobenzene | ND | ND | 1 |
| 1,2-Dichlorobenzene | ND | ND | 1 |
| 1,4-Dichlorobenzene | ND | ND | 1 |

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Laboratory Report

ENSR
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 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-004
 Date Sampled: 29-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 7-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-001

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 10 |
| Bromomethane | ND | ND | 10 |
| Vinyl Chloride | ND | ND | 10 |
| Chloroethane | ND | ND | 10 |
| Methylene Chloride | ND | ND | 5 |
| Acetone | ND | ND | 10 |
| Carbon Disulfide | ND | ND | 5 |
| 1,1-Dichloroethene | ND | ND | 5 |
| 1,1-Dichloroethane | ND | ND | 5 |
| trans-1,2-Dichloroethene | ND | ND | 5 |
| Chloroform | ND | ND | 5 |
| 1,2-Dichloroethane | ND | ND | 5 |
| 2-Butanone | ND | ND | 10 |
| 1,1,1-Trichloroethane | ND | ND | 5 |
| Carbon Tetrachloride | ND | ND | 5 |
| Vinyl Acetate | ND | ND | 10 |
| Bromodichloromethane | ND | ND | 5 |
| 1,2-Dichloropropane | ND | ND | 5 |
| trans-1,3-Dichloropropene | ND | ND | 5 |
| Trichloroethene | ND | ND | 5 |
| Dibromochloromethane | ND | ND | 5 |
| 1,1,2-Trichloroethane | ND | ND | 5 |
| Benzene | ND | ND | 5 |
| cis-1,3-Dichloropropene | ND | ND | 5 |
| 2-Chloroethylvinyl ether | ND | ND | 10 |
| Bromoform | ND | ND | 5 |
| 4-Methyl-2-pentanone | ND | ND | 10 |
| 2-Hexanone | ND | ND | 10 |
| Tetrachloroethene | ND | ND | 5 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 5 |
| Toluene | ND | ND | 5 |
| Chlorobenzene | ND | ND | 5 |
| Ethylbenzene | ND | ND | 5 |
| Styrene | ND | ND | 5 |
| Xylenes, Total | ND | ND | 5 |

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Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Laboratory Report

ENSR
19782 MacArthur Blvd., Suite 365
Irvine, CA 92715
ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-010
Date Sampled: 30-AUG-1989
Date Sample Rec'd: 31-AUG-1989
Date Analyzed: 7-SEP-1989
Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
Sample ID: MW-002

Halogenated Volatile Organics, EPA 601

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 1 |
| Bromomethane | ND | ND | 1 |
| Vinyl Chloride | ND | ND | 1 |
| Chloroethane | ND | ND | 1 |
| Methylene Chloride | ND | 0.4 | 1 |
| Trichlorofluoromethane | ND | ND | 1 |
| 1,1-Dichloroethene | ND | ND | 1 |
| 1,1-Dichloroethane | ND | ND | 1 |
| trans-1,2-Dichloroethene | ND | ND | 1 |
| Chloroform | 6.5 | ND | 1 |
| 1,2-Dichloroethane | ND | ND | 1 |
| 1,1,1-Trichloroethane | ND | ND | 1 |
| Carbon Tetrachloride | ND | ND | 1 |
| Bromodichloromethane | ND | ND | 1 |
| 1,2-Dichloropropane | ND | ND | 1 |
| cis-1,3-Dichloropropene | ND | ND | 1 |
| Trichloroethene | ND | ND | 1 |
| Dibromochloromethane | ND | ND | 1 |
| 1,1,2-Trichloroethane | ND | ND | 1 |
| trans-1,3-Dichloropropene | ND | ND | 1 |
| 2-Chloroethylvinyl ether | ND | ND | 1 |
| Bromoform | ND | ND | 1 |
| Tetrachloroethene | ND | ND | 1 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 1 |
| Chlorobenzene | ND | ND | 1 |
| 1,3-Dichlorobenzene | ND | ND | 1 |
| 1,2-Dichlorobenzene | ND | ND | 1 |
| 1,4-Dichlorobenzene | ND | ND | 1 |

NOTE: Higher detection limits due to sample matrix.

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Laboratory Report

ENSR
 19782 MacArthur Blvd., Suite 365
 Irvine, CA 92715
 ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-010
 Date Sampled: 30-AUG-1989
 Date Sample Rec'd: 31-AUG-1989
 Date Analyzed: 7-SEP-1989
 Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.
 Sample ID: MW-002

Purgeable Organics, EPA 624

Units: ug/L

| Parameter | Result | Blank | Detection Limit |
|---------------------------|--------|-------|-----------------|
| Chloromethane | ND | ND | 10 |
| Bromomethane | ND | ND | 10 |
| Vinyl Chloride | ND | ND | 10 |
| Chloroethane | ND | ND | 10 |
| Methylene Chloride | ND | ND | 5 |
| Acetone | ND | ND | 10 |
| Carbon Disulfide | ND | ND | 5 |
| 1,1-Dichloroethene | ND | ND | 5 |
| 1,1-Dichloroethane | ND | ND | 5 |
| trans-1,2-Dichloroethene | ND | ND | 5 |
| Chloroform | 12. | ND | 5 |
| 1,2-Dichloroethane | ND | ND | 5 |
| 2-Butanone | ND | ND | 10 |
| 1,1,1-Trichloroethane | ND | ND | 5 |
| Carbon Tetrachloride | ND | ND | 5 |
| Vinyl Acetate | ND | ND | 10 |
| Bromodichloromethane | ND | ND | 5 |
| 1,2-Dichloropropane | ND | ND | 5 |
| trans-1,3-Dichloropropene | ND | ND | 5 |
| Trichloroethene | ND | ND | 5 |
| Dibromochloromethane | ND | ND | 5 |
| 1,1,2-Trichloroethane | ND | ND | 5 |
| Benzene | ND | ND | 5 |
| cis-1,3-Dichloropropene | ND | ND | 5 |
| 2-Chloroethylvinyl ether | ND | ND | 10 |
| Bromoform | ND | ND | 5 |
| 4-Methyl-2-pentanone | ND | ND | 10 |
| 2-Hexanone | ND | ND | 10 |
| Tetrachloroethene | ND | ND | 5 |
| 1,1,2,2-Tetrachloroethane | ND | ND | 5 |
| Toluene | ND | ND | 5 |
| Chlorobenzene | ND | ND | 5 |
| Ethylbenzene | ND | ND | 5 |
| Styrene | ND | ND | 5 |
| Xylenes, Total | ND | ND | 5 |

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Laboratory Report

ENSR

19782 MacArthur Blvd., Suite 365

Irvine, CA 92715

ATTN: MR. BRAD STRAUCH

Analysis No.: G-8924310-001/010

Date Sampled: 29-AUG-1989

30-AUG-1989

Date Sample Rec'd: 31-AUG-1989

Sample Type: LIQUID

Project: (5500-005-102) POWERINE OIL CO.

QA/QC Summary

| Date | Parameter (Method) | QC Type | Average Spike Recovery | Acceptable Range | Relative Percent Difference | Acceptable Range |
|------------|------------------------------|---------|------------------------|------------------|-----------------------------|------------------|
| 6-SEP-1989 | 1,1-DICHLOROETHENE (EPA 601) | L | 69 | 60-120 | 25. | 40 |
| 7-SEP-1989 | 1,1-DICHLOROETHENE (EPA 601) | L | 82 | 60-120 | 12. | 40 |
| 6-SEP-1989 | TRICHLOROETHENE (EPA 601) | L | 112 | 60-120 | 25. | 40 |
| 7-SEP-1989 | TRICHLOROETHENE (EPA 601) | L | 108 | 60-120 | 20. | 40 |
| 6-SEP-1989 | CHLOROBENZENE (EPA 601) | L | 85 | 60-120 | 25. | 40 |
| 7-SEP-1989 | CHLOROBENZENE (EPA 601) | L | 104 | 60-120 | 18. | 40 |
| 7-SEP-1989 | 1,1-DICHLOROETHENE (EPA 624) | M | 102 | 58-118 | 8. | 12 |
| 8-SEP-1989 | 1,1-DICHLOROETHENE (EPA 624) | L | 82 | 58-118 | 1. | 12 |
| 7-SEP-1989 | TRICHLOROETHENE (EPA 624) | M | 102 | 69-121 | 8. | 16 |
| 8-SEP-1989 | TRICHLOROETHENE (EPA 624) | L | 88 | 69-121 | 5. | 16 |
| 7-SEP-1989 | BENZENE (EPA 624) | M | 110 | 63-120 | 3. | 12 |
| 8-SEP-1989 | BENZENE (EPA 624) | L | 100 | 63-120 | 4. | 12 |
| 7-SEP-1989 | TOLUENE (EPA 624) | M | 105 | 68-121 | 3. | 16 |
| 8-SEP-1989 | TOLUENE (EPA 624) | L | 94 | 68-121 | 5. | 16 |
| 7-SEP-1989 | CHLOROBENZENE (EPA 624) | M | 107 | 66-123 | 9. | 13 |
| 8-SEP-1989 | CHLOROBENZENE (EPA 624) | L | 95 | 66-123 | 4. | 13 |

M = Matrix Spike

L = Laboratory Control Sample Spike

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